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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,811	12/08/2003	Geum-Jong Bae	239/161 DIV	9264

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LEE & STERBA, P.C.
SUITE 2000
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ARLINGTON, VA 22209

EXAMINER

HOGANS, DAVID L

ART UNIT PAPER NUMBER

2813

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,811

Applicant(s)

BAE ET AL.

Examiner

David L. Hogans

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/103,759.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on September 30, 2004.

Status of Claims

Claims 13-16 are pending. Claims 1-12 and 17-25 are cancelled.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For instance, Claim 13 lines 10-11, claims "a low-concentration junction area formed to a third depth in the substrate under the horizontal protruding portion of the L-shaped upper spacer ...". The Examiner is uncertain as to how this condition may exist because medium-concentration region 182 is formed off of the vertical sidewall of upper spacer 151 (i.e. – it is located under the horizontal portion of L-shaped upper spacer 151), and region 190 is not formed until upper spacer layer 151 is removed. Since medium-concentration region 182 already occupies the region beneath the horizontal protruding portion of the L-shaped upper spacer 151, low-concentration region 190 may not. According to Figure 9, low-concentration region 190 may occupy the region under the horizontal protruding portion of the L-shaped lower spacer 142 or low-concentration region 190 may occupy the region beneath the previously existing vertical sidewall of L-shaped upper spacer 151.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Similar to Claim 13 above, Claim 14 lines 2-3, claims "... low-concentration junction areas are formed under the horizontal protruding portion of the L-shaped upper spacer." The Examiner is uncertain as to how this condition may exist because medium-concentration region 182 is formed off of the vertical sidewall of upper spacer 151 (i.e. – it is located under the horizontal portion of L-shaped upper spacer 151), and region 190 is not formed until upper spacer layer 151 is removed. Since medium-concentration region 182 already occupies the region beneath the horizontal protruding portion of the L-shaped upper spacer 151, low-concentration region 190 may not. According to Figure 9, low-concentration region 190 may occupy the region under the horizontal protruding portion of the L-shaped lower spacer 142 or low-concentration region 190 may occupy the region beneath the previously existing vertical sidewall of L-shaped upper spacer 151.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by French Publication 2,760,130 to Michel et al.

In reference to Claim 13 (as best understood), Michel et al. teaches:

- a gate pattern (5) formed on a semiconductor substrate; See Figures 1-8 and pages 4-7
- an L-shaped upper spacer (71 or 72) having a horizontal protruding portion, the upper spacer being formed on a sidewall surface of the gate pattern; See Figures 1-8 and pages 4-7
- an L-shaped lower spacer (33 or 34 – noting Figure 8) having a vertical sidewall between a vertical sidewall of the L-shaped upper spacer and the gate pattern and a horizontal protruding portion between the horizontal protruding portion of the L-shaped upper spacer and the substrate; See Figures 1-8 and pages 4-7
- a high-concentration junction area (75 or 76) formed to a first depth in the substrate beyond the L-shaped upper spacer; See Figures 1-8 and pages 4-7
- a low-concentration junction area (31 or 32) formed to a third depth in the substrate under the horizontal protruding portion of the L-shaped upper spacer, the first depth being greater than the third depth; See Figures 1-8 and pages 4-7 and
- a medium-concentration junction area (73 or 74) formed to a second depth in the substrate and positioned between the high- and low-concentration junction areas and beyond the vertical sidewall portion of the L-shaped upper spacer, the second depth being between the first and third depths. See Figures 1-8 and pages 4-7

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In reference to Claim 14 (as best understood), Michel et al teaches:

- wherein medium- and low-concentration junction areas are formed under the horizontal protruding portion of the L-shaped upper spacer. See Figures 1-8 and pages 4-7

In reference to Claim 15, Michel et al. teaches:

- wherein the L-shaped lower spacer is made of silicon oxide. See Figures 1-8 and pages 4-7

In reference to Claim 16, Michel et al. teaches:

- wherein the L-shaped upper spacer is made of a material having an etch selectivity with respect to the L-shaped lower spacer. See Figures 1-8 and pages 4-7

Response to Arguments

6. Applicant's arguments with respect to claims 13-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Hogans whose telephone number is (571) 272-1691. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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